

10/785 430



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Miehner et al.

Attorney Docket No.: KLA1P117X1F/  
1151 CIP6

Patent: 7,242,477 B2

Issued: July 10, 2007

Title: APPARATUS AND METHODS FOR  
DETECTING OVERLAY ERRORS USING  
SCATTEROMETRY

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on March 10, 2008 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: \_\_\_\_\_

Juan Petris

**REQUEST FOR CERTIFICATE OF CORRECTION  
OF OFFICE MISTAKE  
(35 U.S.C. §254, 37 CFR §1.322)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Attn: Certificate of Correction

Dear Sir:

Attached is Form PTO-1050 (Certificate of Correction) at least one copy of which is suitable for printing. The errors together with the exact page and line number where the errors are shown correctly in the application file are as follows:

**COVER PAGE:**

1. In the section (75) Inventors, change "Boris Golovanesky" to --Boris Golovanevsky--. This appears correctly in the Updated Filing Receipt as mailed on January 25, 2005.

**Certificate  
MAR 17 2008  
of Correction**

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**SPECIFICATION:**

1. Column 36, line 50, change “cylindric” to --cylindrical--. This appears correctly in Amendment A as filed on December 20, 2006, on page 3, paragraph 1, line 3.
2. Column 36, line 51, change “dimension” to --dimensional--. This appears correctly in Amendment A as filed on December 20, 2006, on page 3, paragraph 1, line 4.
3. Column 39, line 17, change “combination” to --combinational--. This appears correctly in Amendment A as filed on December 20, 2006, on page 3, paragraph 2, line 1.
4. Column 40, line 57, change “detain” to --detail in --. This appears correctly in Amendment A as filed on December 20, 2006, on page 4, paragraph 1, line 2.
5. Column 42, line 31, change “translation” to --translational--. This appears correctly in Amendment A as filed on December 20, 2006, on page 4, paragraph 2, line 5.

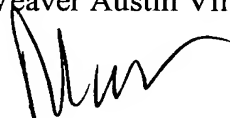
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Patentee hereby requests expedited issuance of the Certificate of Correction because the error lies with the Office and because the error is clearly disclosed in the records of the Office. As required for expedited issuance, enclosed is documentation that unequivocally supports the patentee's assertion without needing reference to the patent file wrapper.

It is noted that the above-identified errors were printing errors that apparently occurred during the printing process. Accordingly, it is believed that no fees are due in connection with the filing of this Request for Certificate of Correction. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 504480 (Order No. KLA1P117X1F).

Respectfully submitted,  
Weaver Austin Villeneuve & Sampson LLP



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PATENT COLLECTION

MAR 17 2008



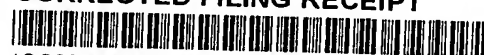
## UNITED STATES PATENT AND TRADEMARK OFFICE

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/785,430	02/23/2004	2877	918	KLA1P117X1F/P1151/7	24	21	1

022434  
BEYER WEAVER & THOMAS LLP  
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**CONFIRMATION NO. 8601**  
**CORRECTED FILING RECEIPT**



\*OC000000015023214\*

Date Mailed: 01/25/2005

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

**Applicant(s)**

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**Assignment For Published Patent Application**

KLA-Tencor Technologies Corporation

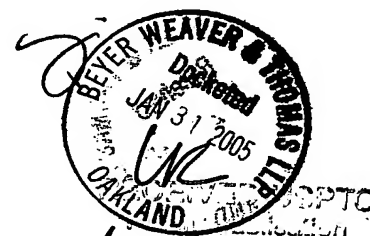
**Power of Attorney:** The patent practitioners associated with Customer Number 022434.

**Domestic Priority data as claimed by applicant**

This application is a CIP of 10/729,838 12/05/2003  
and claims benefit of 60/504,093 09/19/2003  
and claims benefit of 60/449,496 02/22/2003  
and claims benefit of 60/498,524 08/27/2003

**Foreign Applications**

If Required, Foreign Filing License Granted: 05/14/2004



MAR 17 2008

Figure 10 is a diagrammatic top view representation of a system 1000 for obtaining a line image of a plurality of targets 1008a-1008d in accordance with one embodiment of the present invention. As shown, a light source 1002 directs a beam towards cylindrical optics 1004 configured to illuminate a one-dimensional (1D) incident line 1006 of the targets 1008a-1008d. The light source and the incident optics are arranged so that the 1D incident line strikes at least a portion of all of the four targets. For example, the 1D line is incident on a line through the center of the four targets.

Please replace the paragraph beginning at page 79, Line 6 with the following paragraph:

In other combinational target arrangements, the imaging structures are laid out in the center of a symmetrically arranged set of scatterometry targets. Figure 11b is a top view representation of a second combination imaging and scatterometry target embodiment. As shown, scatterometry targets are symmetrically arranged around a central image type target 1152. In this example, the image type target 1152 is formed from quadrants of line segments, where each quadrant is either in the x or y direction. Suitable image type targets and techniques for determining overlay with same are described in the following U.S. patents and applications: (1) Patent No. 6,462,818, issued 8 October 2002, entitled "OVERLAY ALIGNMENT MARK DESIGN", by Bareket, (2) Patent No. 6,023,338, issued 8 February 2000, entitled "OVERLAY ALIGNMENT MEASUREMENT OF WAFER", by Bareket, (3) Application No. 09/894,987, filed 27 June 2001, entitled "OVERLAY MARKS, METHODS OF OVERLAY MARK DESIGN AND METHODS OF OVERLAY MEASUREMENTS", by Ghinovker et al., and (4) Patent No. 6,486,954, issued 26 November 2002, entitled "OVERLAY ALIGNMENT MEASUREMENT MARK" by Levy et al. These patents and applications are all incorporated herein by reference in their entirety.

Please replace the paragraph beginning at page 81, Line 18 with the following paragraph:

Additionally, imaging or scatterometry metrology may be selected for particular targets based on analyzing the trade-offs between performance versus throughput or wafer real estate. For instance, smaller targets may be used in tighter spaces such as in-chip, while larger targets are used larger spaces such as in the scribe lines or streets located between fields or dies, respectively. In one implantation, larger targets are distributed across the field of the lithography tool in the scribe line, while smaller targets are placed across the field within in the one or more dies. Scatterometry overlay may be used for the larger targets, *e.g.*, in the scribe lines or streets, while imaging overlay is used for the smaller targets, *e.g.*, that are located in-chip or within one or more dies. In one implementation, scatterometry metrology is used for targets within the scribe line (and/or streets), and imaging metrology is used for all other targets at other locations.

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Several embodiments for placing targets across the field either in-chip or in the streets or scribe lines are described in detail in co-pending U.S. Provisional Application No. 60/546,546 (having Attorney Docket No. KLA1P122X1P2), filed 20 February 2004, entitled APPARATUS AND METHODS FOR DETERMINING OVERLAY AND USES OF SAME, by Mark Ghinovker et al., which application is incorporated herein by reference in its entirety for all purposes. In another implementation, overlay may be determined on two layer and simultaneous type targets as described in this provisional application. In one implementation, scatterometry metrology may be used for simultaneous or single layer targets, while imaging metrology is used for two layer targets, or visa versa.

Please replace the paragraph beginning at page 85, Line 8 with the following paragraph:

The combination system 1160 also includes a stage 1166 for holding the sample thereon. The stage and the optical assemblies move in relation to one another so that the stage can be in a first position under the imaging optical assembly 1162 and in a second position under the scatterometry optical assembly 1164. The stage and/or the optical assemblies 1162 and 1164 may be coupled to a translational motor. Although a single isolation chamber and stage 1166 are shown for system 1160, the imaging and scatterometry assemblies may have their own stage and separate isolation chambers.

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(Also Form PT-1050)

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 7,242,477 B2

Page 1 of 1

DATED : July 10, 2007

INVENTOR(S) : Mieher et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

**In the Cover Page:**

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**In the Specification:**

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Column 42, line 31, change "translation" to --translational--.

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PATENT NO. 7,242,477 B2

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